

**DRAFT**

NOV 06 1990

CERCLIS IDENTIFICATION NUMBER

STATE

NJ

SITE NUMBER

NJ0980529473

## SITE LOCATION

SITE NAME: Legal, common or descriptive name of site

NJDOT MAINTENANCE YARD - FLEMINGTON

STREET ADDRESS, ROUTE or SPECIFIC LOCATION IDENTIFIER

ROUTE 31

CITY

FLEMINGTON

STATE

NJ

ZIP CODE

08822

TELEPHONE

(201) 782-3025

COORDINATES: LATITUDE and LONGITUDE

LAT: 40° 30' 25" LONG 74° 53' 27"

TOWNSHIP, RANGE, and SECTION

## OWNER/OPERATOR IDENTIFICATION

OWNER

STATE OF NEW JERSEY / DOT

OPERATOR

NJ DEPARTMENT OF TRANSPORTATION

OWNER ADDRESS

951 Parkway Ave

OPERATOR ADDRESS

Route 31

CITY

Trenton

CITY

Flemington

STATE

NJ

ZIP CODE

08623

TELEPHONE

(609) 985-4293

STATE

NJ

ZIP CODE

08822

TELEPHONE

(201) 782-3025

## TYPE OF OWNERSHIP

- ☐ PRIVATE  
☐ FEDERAL: Agency name \_\_\_\_\_  
☒ STATE  
☐ COUNTY  
☐ MUNICIPAL  
☐ OTHER: \_\_\_\_\_  
☐ NOT SPECIFIED

## OWNER/OPERATOR NOTIFICATION ON FILE

- ☒ NONE  
☐ CERCLA 103 C. UNCONTROLLED WASTE SITE  
DATE: \_\_\_\_\_  
☐ RCRA 3001  
DATE: \_\_\_\_\_

## SITE STATUS

- ☒ ACTIVE  
☐ INACTIVE  
☐ UNKNOWN

## YEARS OF OPERATION

BEGINNING YEAR: 1959  
ENDING YEAR: Present  
☐ UNKNOWN

## APPROXIMATE SIZE OF SITE

4.55 ACRES

## SITE EVALUATION

AGENCY / ORGANIZATION

NJDEP / DHWM / BPA

INVESTIGATOR

FRANK SORCE

CONTACT

Kenneth J. Kloo

ADDRESS

300 Horizon Center, CN 407, Trenton, NJ 08625-0407

TELEPHONE

(609) 584-4280

DATE

June, 17, 1991

249198



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GENERAL INFORMATION

Site Description and Operational History:

The property was formerly owned by the Standard Oil Company - Esso (Exxon) who operated a bulk storage station for gasoline and kerosene from 1928 to 1958. In the process of removing six aboveground storage tanks a lead sludge was collected and buried on site. In 1959 NJDOT purchased the property and operated as a maintenance yard.

Probable Contaminants of Concern:

(Previous investigations; analytical data)

Lead is a probable contaminant but was never detected in soil or ground water samples above action levels. Benzene, tetrachloroethylene and xylene has been detected in several nearby potable wells.

UKRAI

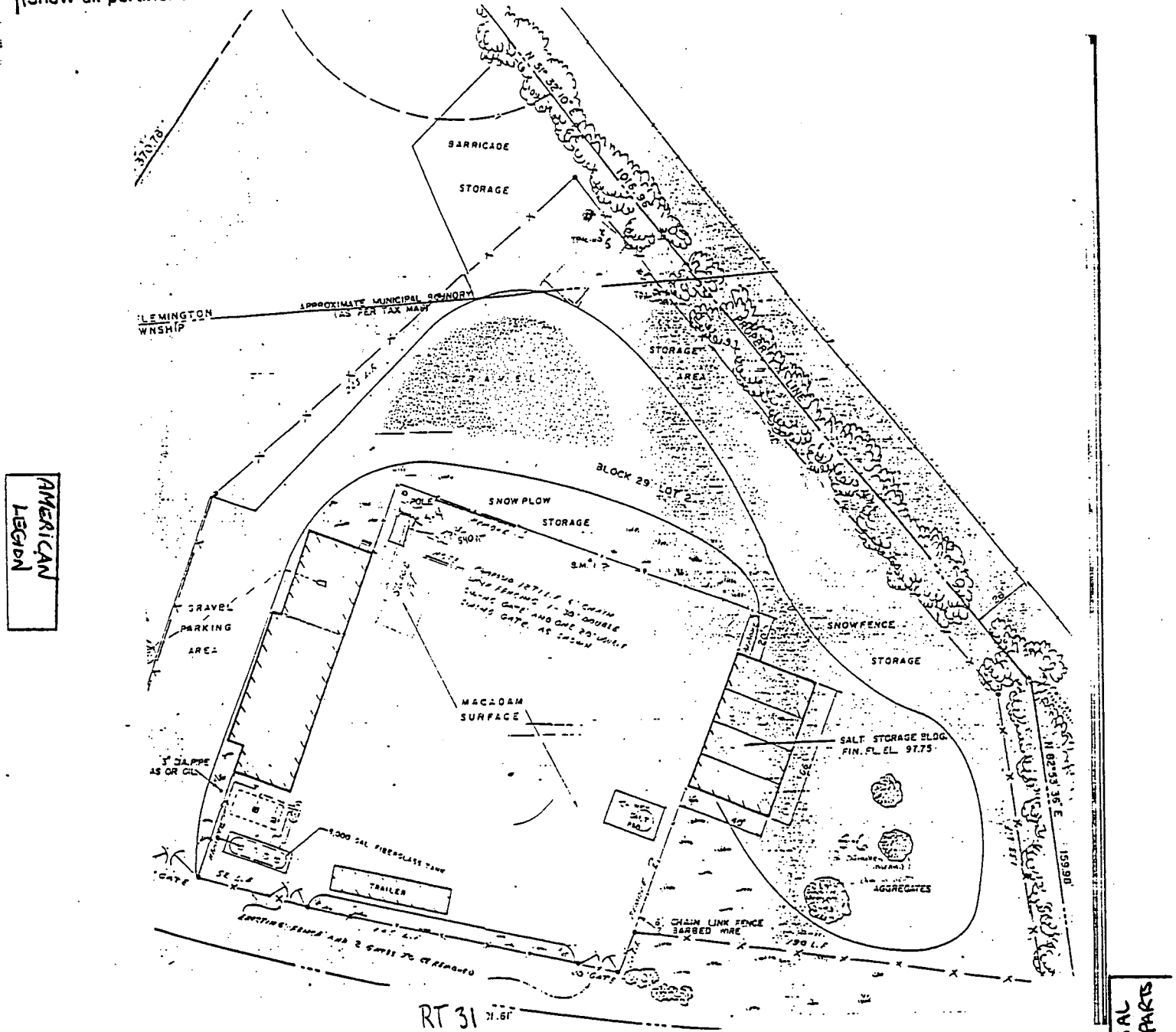
Date: 6/17/91

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GENERAL INFORMATION (continued)

Site Sketch:

(Show all pertinent features; indicate sources and closest targets)



R.L. FORD Funeral Home	Karparts H&R MANAGEMENT ASS. INC.	VIKING Devel. Co.
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Residence

NATIONAL  
AUTO PARTS

## Source Descriptions:

SURFACE Impoundment:

90' x 180' area of lead sludge disposal

The sludge was reportedly removed in 1960, however, it is not known how much material was excavated nor ~~when~~ were post excavation samples collected.

## Waste Characteristics (WC) Calculations:

(See PA Table 1, page 5)

Surface Impoundment

$$WC = 90_{ft} \times 180_{ft} = 16,200_{ft^2} = 32$$

WC =

32

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## PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

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PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	WC = 32	WC = 100	Formula for Assigning Source WQ Values
CONSTITUENT	N/A	≤ 100 lbs	> 100 to 10,000 lbs	> 10,000 lbs	$lbs \div 1$
WASTESTREAM	N/A	≤ 500,000 lbs	> 500,000 to 50 million lbs	> 50 million lbs	$lbs \div 5,000$
VOLUME	Landfill	≤ 6.75 million ft <sup>3</sup> ≤ 250,000 yd <sup>3</sup>	> 6.75 million ft <sup>3</sup> to 675 million ft <sup>3</sup> > 250,000 to 25 million yd <sup>3</sup>	> 675 million ft <sup>3</sup> > 25 million yd <sup>3</sup>	$ft^3 \div 67,500$ $yd^3 \div 2,500$
	Surface impoundment	≤ 6,750 ft <sup>3</sup> ≤ 250 yd <sup>3</sup>	> 6,750 ft <sup>3</sup> to 675,000 ft <sup>3</sup> > 250 to 25,000 yd <sup>3</sup>	> 675,000 ft <sup>3</sup> > 25,000 yd <sup>3</sup>	$ft^3 \div 67.5$ $yd^3 \div 2.5$
	Drums	≤ 1,000 drums	> 1,000 to 100,000 drums	> 100,000 drums	$drums \div 10$
	Tanks and non-drum containers	≤ 50,000 gallons	> 50,000 to 5 million gallons	> 5 million gallons	$gallons \div 500$
	Contaminated soil	≤ 6.75 million ft <sup>3</sup> ≤ 250,000 yd <sup>3</sup>	> 6.75 million ft <sup>3</sup> to 675 million ft <sup>3</sup> > 250,000 to 25 million yd <sup>3</sup>	> 675 million ft <sup>3</sup> > 25 million yd <sup>3</sup>	$ft^3 \div 67,500$ $yd^3 \div 2,500$
	Pile	≤ 6,750 ft <sup>3</sup> ≤ 250 yd <sup>3</sup>	> 6,750 ft <sup>3</sup> to 675,000 ft <sup>3</sup> > 250 to 25,000 yd <sup>3</sup>	> 675,000 ft <sup>3</sup> > 25,000 yd <sup>3</sup>	$ft^3 \div 67.5$ $yd^3 \div 2.5$
AREA	Landfill	≤ 340,000 ft <sup>2</sup> ≤ 7.8 acres	> 340,000 to 34 million ft <sup>2</sup> > 7.8 to 780 acres	> 34 million ft <sup>2</sup> > 780 acres	$ft^2 \div 3,400$ $acres \div 0.078$
	Surface impoundment	≤ 1,300 ft <sup>2</sup> ≤ 0.029 acres	> 1,300 to 130,000 ft <sup>2</sup> > 0.029 to 2.9 acres	> 130,000 ft <sup>2</sup> > 2.9 acres	$ft^2 \div 13$ $acres \div 0.00029$
	Contaminated soil	≤ 3.4 million ft <sup>2</sup> ≤ 78 acres	> 3.4 million to 340 million ft <sup>2</sup> > 78 to 7,800 acres	> 340 million ft <sup>2</sup> > 7,800 acres	$ft^2 \div 34,000$ $acres \div 0.78$
	Pile*	≤ 1,300 ft <sup>2</sup> ≤ 0.029 acres	> 1,300 to 130,000 ft <sup>2</sup> > 0.029 to 2.9 acres	> 130,000 ft <sup>2</sup> > 2.9 acres	$ft^2 \div 13$ $acres \div 0.00029$
	Land treatment	≤ 27,000 ft <sup>2</sup> ≤ 0.62 acres	> 27,000 to 2.7 million ft <sup>2</sup> > 0.62 to 62 acres	> 2.7 million ft <sup>2</sup> > 62 acres	$ft^2 \div 270$ $acres \div 0.0062$

1 ton = 2,000 lbs = 1 yd<sup>3</sup> = 4 drums = 200 gallons

\* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WQ Total	WC Score
> 0 to 100	18
> 100 to 10,000	32
> 10,000	100

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GROUND WATER PATHWAY  
GROUND WATER USE DESCRIPTION

Describe Ground Water Use Within 4-miles of the Site:

(Provide generalized stratigraphy; information on aquifers, municipal, and or private wells)

The site is underlain by the Brunswick Formation to a depth of at least 500 feet. The Brunswick Formation is characterized by reddish-brown shales and siltstones. Approximately two-thirds of Flemington Borough is connected to the Flemington Public Supply while one-third utilizes private wells for potable water supply. Flemington Water Department has three wells pumping an average of .664 mgd to 1,229 service locations. There are 11 industrial wells within a 1 mile radius of the site.

Show calculations of ground water drinking water populations:

Private Wells

Flemington 215 people / 78 residences

Public Wells

Flemington

4 wells ranging from 250 to 300 feet deep  
> 1 to 2 mile from site 3756 people served

OUTLYING TOWNS:

Private Wells

People Served

RARITAN

11,442

READINGTON

6952

EAST AMWELL

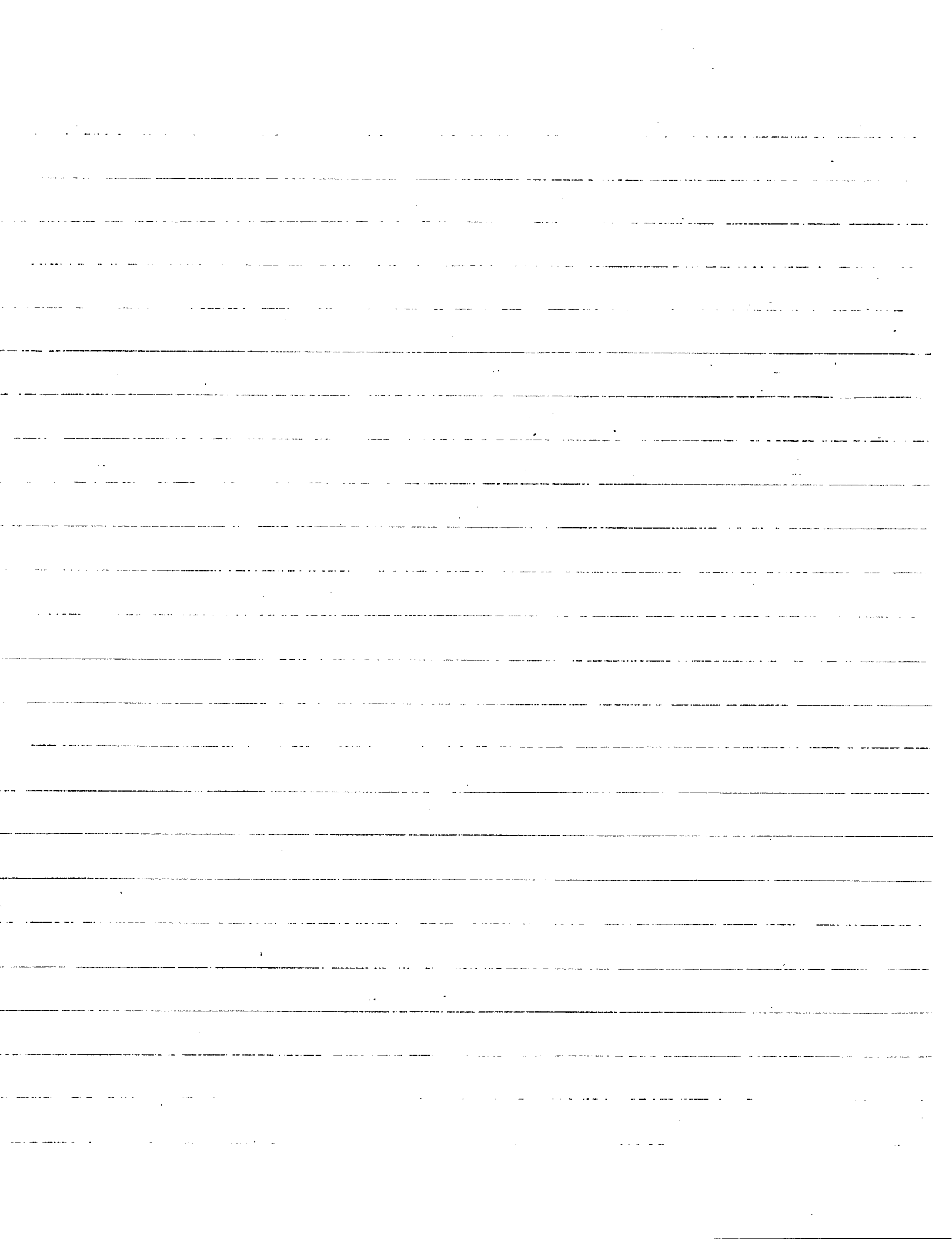
348

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# Flemington Borough Blended Water System

4 Public Supply Wells located from  $\geq 1$  to 2 miles from the site.

Location	Depth (ft)	Pumpage (gpd)	Population Served
Court St.	252	151,000	3756
Rt. 12	196	196,000	
Beaville Ave.	300	185,000	
Shields Ave.	unknown	75,000	
		<u>507,000</u>	





## GROUND WATER PATHWAY CRITERIA LIST

Date:

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release and identifying primary targets. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize a suspected release or to identify primary targets. This chart will record your professional judgment in evaluating these factors.

The "Suspected Release" section of the chart guides you through evaluation of some site, source, and pathway conditions to help hypothesize whether a release from the site is likely. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary." In the "Primary Targets" section on this sheet, record the responses for the well that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

GROUND WATER PATHWAY			
SUSPECTED RELEASE			PRIMARY TARGETS
Y es	N o	U n k n o w n	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are sources poorly contained?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is waste quantity particularly large?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is precipitation heavy and infiltration rate high?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is the site located in an area of karst terrain?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the subsurface highly permeable or conductive?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is drinking water drawn from a shallow aquifer?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are suspected contaminants highly mobile in ground water?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does any circumstantial evidence of ground water or drinking water contamination exist?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other criteria? _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SUSPECTED RELEASE?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is any drinking-water well nearby?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is any nearby drinking-water well closed?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Has foul-tasting or foul-smelling water been reported by any nearby drinking-water users?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Do any nearby wells have a large drawdown or high production rate?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are drinking-water wells located between the site and other wells that are suspected to be exposed to hazardous substances?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does any circumstantial evidence of ground water or drinking water contamination exist?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does any drinking-water well warrant sampling?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other criteria? _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PRIMARY TARGET(S) IDENTIFIED?

Summarize the rationale for suspected release (attach an additional page if necessary):

A 90'x180' area was used for the disposal of lead sludge. The sludge was reportedly removed in 1960 but the amount removed is not known. No post excavation samples were collected.

Summarize the rationale for Primary Targets (attach an additional page if necessary):

Several businesses within .25 miles of the site utilize private wells for drinking purposes.

Pathway Characteristics	
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Is the site located in karst terrain?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Depth to aquifer:	<u>2-10</u> ft
Distance to the nearest drinking-water well:	<u>300</u> ft

## LIKELIHOOD OF RELEASE

	A Suspected Release (550)	B No Suspected Release (500 or 340)	References
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550, and use only column A for this pathway.	550		
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			
LR =	550		

## TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you suspect have been exposed to hazardous substances from the site (see Ground Water Pathway Criteria List, page 7). _____ people x 10 =	0		
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you do NOT suspect have been exposed to hazardous substances from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, attach a page to show apportionment calculations.	258		
5. NEAREST WELL: If you have identified any Primary Targets for ground water, assign a score of 50; otherwise, assign the highest Nearest Well score from PA Table 2. If no drinking-water wells exist within 4 miles, assign a score of zero.	20		
6. WELLHEAD PROTECTION AREA (WHPA): Assign a score of 20 if any portion of a designated WHPA is within 1/4 mile of the site; assign 5 if from 1/4 to 4 miles.	0		
7. RESOURCES: A score of 5 is assigned.	5	5	
T =	283		

## WASTE CHARACTERISTICS

8. A. If you have identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4.	32		
WC =	32		

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

60.3

(subject to a maximum of 100)

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**PA Table 2a: Non-Karst Aquifers**

**Nearest Well =**

PA Table 2b: Karst Aquifers

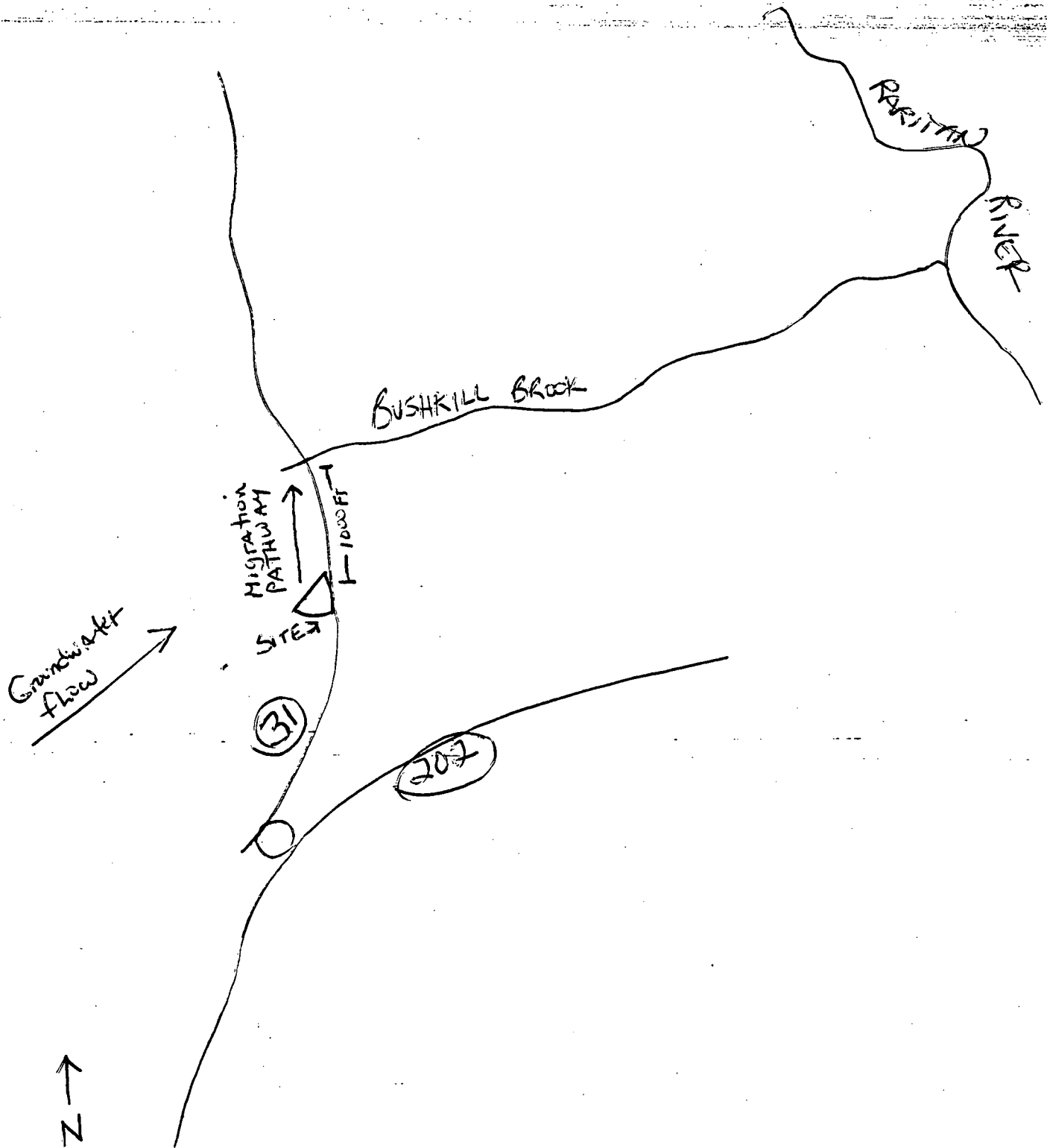
Nearest Well =

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SURFACE WATER PATHWAY  
MIGRATION ROUTE SKETCH

Provide a Sketch of the Surface Water Migration Route:

(include runoff route, probable point of entry, 15-mile target distance limit, intakes, fisheries, and sensitive environments)



NOT TO SCALE

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release and identifying primary targets. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize a suspected release or to identify primary targets. This chart will record your professional judgment in evaluating these factors.

The "Suspected Release" section of the chart guides you through evaluation of some site, source, and pathway conditions to help hypothesize whether a release from the site is likely. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary." In the "Primary Targets" section on this sheet, record the responses for the target that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

SURFACE WATER PATHWAY			
SUSPECTED RELEASE		PRIMARY TARGETS	
Y	N	UNKNOWN	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is surface water nearby?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is waste quantity particularly large?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the drainage area large?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is precipitation heavy or infiltration rate low?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are sources poorly contained or prone to runoff or flooding?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is a runoff route well defined (e.g., ditch or channel leading to surface water)?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is vegetation stressed along the probable runoff path?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are suspected contaminants highly persistent in surface water?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are sediments/water unnaturally discolored?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is wildlife unnaturally absent?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Has deposition of waste into surface water been observed?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is ground water discharge to surface water likely?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is there any circumstantial evidence of surface water contamination?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other criteria? _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUSPECTED RELEASE?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is any target nearby? If yes:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Drinking-water intake
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fishery
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Sensitive environment
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Has an intake, fishery, or recreational area been closed?
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is there any circumstantial evidence of surface water contamination at or downstream of a target?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does any target warrant sampling? If yes:
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Drinking-water intake
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Fishery
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Sensitive environment
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other criteria? _____
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PRIMARY INTAKE(S) IDENTIFIED?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PRIMARY FISHERY IDENTIFIED?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED?

Summarize the rationale for suspected release (attach an additional page if necessary):

The potential for surface water contamination is low as the nearest surface water is 1000 feet north of the site.

Summarize the rationale for Primary Targets (attach an additional page if necessary):

One surface water intake exists 3.1 miles from the site along the Barton River. This is an industrial supply intake.

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# SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Surface Water Pathway Criteria List, page 11)?	Yes _____ No <u>✓</u>
Distance to surface water:	<u>1000</u> ft
Flood Frequency:	<u>2500</u> yrs
What is the downstream distance to the nearest drinking-water intake?	<u>NA</u> miles
nearest fishery? <u>1000</u> miles	nearest sensitive environment? <u>NA</u> miles

## LIKELIHOOD OF RELEASE

- SUSPECTED RELEASE:** If you suspect a release to surface water (see page 11), assign a score of 550, and use only column A for this pathway.
- NO SUSPECTED RELEASE:** If you do not suspect a release to surface water, and the distance to surface water is 2,500 feet or less, assign a score of 500; otherwise, assign a score from the table below. Use only column B for this pathway.

Floodplain	Score
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

A Suspected Release	B No Suspected Release	References
(550)		
	(500, 400, 300 or 100)  <u>500</u>	
(550)	(500, 400, 300 or 100) <u>500</u>	

LR =

## DRINKING WATER THREAT TARGETS

- Determine the water body types, flows (if applicable), and number of people served by all drinking-water intakes within the 15-mile target distance limit. If there are no drinking-water intakes within the target distance limit, assign a total Targets score of 5 at the bottom of this page (Resources only) and proceed to page 14.

Intake Name	Water Body Type	Flow	People Served
_____	_____	_____ cfs	_____
_____	_____	_____ cfs	_____
_____	_____	_____ cfs	_____

- PRIMARY TARGET POPULATION:** If you suspect any drinking-water intake listed above has been exposed to hazardous substances from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the number of people served.

\_\_\_\_\_ people x 10 =

- SECONDARY TARGET POPULATION:** Determine the Secondary Target Population score from PA Table 3 based on the populations using drinking-water from intakes that you do NOT suspect have been exposed to hazardous substances from the site.

Are any intakes part of a blended system? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, attach a page to show apportionment calculations.

- NEAREST INTAKE:** If you have identified any Primary Targets for the drinking water threat (Factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking-water intake exists within the 15-mile target distance limit, assign a score of zero.

- RESOURCES:** A score of 5 is assigned.

T =

	0
(50, 20, 10, 2, 1, or 0)	(20, 10, 2, 1, or 0)
(5)	(5)
5	5
	5

Site Name: NJDOT  
Date: 6/17/91

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow Characteristics (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
< 10 cfs	_____	20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,248	_____
10 to 100 cfs	_____	2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	_____
> 100 to 1,000 cfs	_____	1	0	0	1	1	2	5	16	52	163	521	1,633	_____
> 1,000 to 10,000 cfs	_____	0	0	0	0	0	1	1	2	5	16	52	163	_____
> 10,000 cfs or Great Lakes	_____	0	0	0	0	0	0	0	1	1	2	5	16	_____
3-mile Mixing Zone	_____	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	_____

Nearest Intake = \_\_\_\_\_

Score = \_\_\_\_\_

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body		Dilution Weight
Water Body Type	OR Flow Characteristics	
minimal stream	flow less than 10 cfs	1
small to moderate stream	flow 10 to 100 cfs	0.1
moderate to large stream	flow greater than 100 to 1,000 cfs	N/A
large stream to river	flow greater than 1,000 to 10,000 cfs	N/A
large river	flow greater than 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers	flow 10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes	N/A	N/A

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# SURFACE WATER PATHWAY (continued) HUMAN FOOD CHAIN THREAT SCORESHEET

## LIKELIHOOD OF RELEASE

Enter the Surface Water Likelihood of Release score from page 12.

LR =

A	B	References
Suspected Release	No Suspected Release	
(550)	(500, 400, 300 = 100)	
	500	

## HUMAN FOOD CHAIN THREAT TARGETS

8. Determine the water body types and flows (if applicable) for all fisheries within the 15-mile target distance limit. If there are no fisheries within the target distance limit, assign a Targets score of 0 at the bottom of this page and proceed to page 15.

Fishery Name	Water Body Type	Flow
Cushaw Creek	Sm. to med	10-100 cfs
Benton River	river	100 to 10,000 cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the Primary Fisheries:

\_\_\_\_\_, \_\_\_\_\_  
\_\_\_\_\_, \_\_\_\_\_

10. SECONDARY FISHERIES: If you have not identified any Primary Fisheries, assign a Secondary Fisheries score from the table below using the LOWEST flow at any fishery within the 15-mile target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

T =

(300 = 0)	
(210, 30, 12 = 0)	(210, 30, 12 = 0)
	30
(300, 210, 30, 12 = 0)	(210, 30, 12 = 0)
	30



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SURFACE WATER PATHWAY (continued)  
ENVIRONMENTAL THREAT SCORESHEET

6/17/91

LIKELIHOOD OF RELEASE

Enter the Surface Water Likelihood of Release score from page 12. LR =

A	B
Suspected Release	No Suspected Release
(550)	(500, 400, 300 or 100)
	500

References

ENVIRONMENTAL THREAT TARGETS

11. Determine the water body types and flows (if applicable) for all surface water sensitive environments within the 15-mile target distance limit (see PA Tables 4 and 5). If there are no sensitive environments within the 15-mile target distance limit, assign a Targets score of 0 at the bottom of this page, and proceed to page 17.

Environment Name	Water Body Type	Flow
Bushkill Brook	Stream	10-100 cfs
Rantan River	river	1000-10,000 cfs
		cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 13. List the Primary Sensitive Environments:

\_\_\_\_\_  
\_\_\_\_\_

13. SECONDARY SENSITIVE ENVIRONMENTS:

- A. For Secondary Sensitive Environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight (PA Table 4)	Environment Type and Value (PA Tables 5 and 6)	Total
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	

Sum =

- B. If NO Secondary Sensitive Environments are located on surface water bodies with flows of 100 cfs or less, assign a score of 10.

T =

(300 or 0)	
	0
(10 or 0)	10
	10

PA TABLE 5: SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

<i>Sensitive Environment</i>	<i>Assigned Value</i>
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding	
National river reach designated as recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	25
State land designated for wildlife or game management	
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	5
State designated areas for the protection/maintenance of aquatic life under the Clean Water Act	
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER  
WETLANDS FRONTAGE VALUES

<i>Total Length of Wetlands</i>	<i>Assigned Value</i>
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

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**SURFACE WATER PATHWAY (concluded)  
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY**

WASTE CHARACTERISTICS	A	B
	Suspected Release (100 or 32)	No Suspected Release (100, 32, or 18)
14. A. If you have identified ANY Primary Targets for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any Primary Targets for surface water, assign the waste characteristics score calculated on page 4.		32
WC =		32

**SURFACE WATER PATHWAY THREAT SCORES**

Threat	Likelihood of Release (LR) Score (from page 12)	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score $LR \times T \times WC$ / 82,500
Drinking Water	500	5	32	.96 <small>(subject to a maximum of 100)</small>
Human Food Chain	500	30	32	5.8 <small>(subject to a maximum of 100)</small>
Environmental	500	10	32	1.9 <small>(subject to a maximum of 60)</small>

**SURFACE WATER PATHWAY SCORE**  
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

<small>(subject to a maximum of 100)</small> <b>8.7</b>
--

Date:

This chart provides guidelines to assist you in hypothesizing the presence of a resident population. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize resident populations. This chart will record your professional judgment in evaluating this factor.

Use the resident population section to guide you through evaluation of some site and source conditions that will help identify targets likely to be exposed to hazardous substances. You may use this section of the chart more than once, depending on the number of nearby people you feel may be considered part of a resident population. Record the responses for the resident population target that you feel has the highest probability of being exposed to hazardous substances.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question.

SOIL EXPOSURE PATHWAY				
SUSPECTED CONTAMINATION	RESIDENT POPULATION			
Surficial contamination is assumed.	Y es	N o	U nknown	Are there residences, schools, or day care facilities on or within 200 feet of areas of suspected contamination?
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are residences, schools, or day care facilities located on adjacent land previously owned or leased by the site owner/operator?
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is there an overland migration route that might spread hazardous substances near residences, schools, or day care facilities?
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are there any reports of adverse health effects from onsite or adjacent residents or students, exclusive of apparent drinking water or air contamination problems?
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does any offsite property warrant sampling?
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other criteria? _____
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RESIDENT POPULATION IDENTIFIED?

Summarize the rationale for resident population (attach an additional page if necessary):

The surface impoundment has been filled. The nearby residents would not be affected.

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# SOIL EXPOSURE PATHWAY SCORESHEET

6/17/94

## Pathway Characteristics

Do any people live on or within 200 ft of areas of suspected contamination? Yes ☐ No ☒

Do any people attend school or day care on or within 200 ft of areas of suspected contamination? Yes ☐ No ☒

Is the facility active? Yes ☒ No ☐ If yes, estimate the number of workers: 10

## LIKELIHOOD OF EXPOSURE

1. SUSPECTED CONTAMINATION: Surficial contamination is assumed. A score of 550 is assigned.

LE =

A Suspected Contamination (550)	B No Suspected Contamination
550	

References

## RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). 0 people x 10 =
3. RESIDENT INDIVIDUAL: If you have identified any Resident Population (Factor 2), assign a score of 50; otherwise, assign a score of 0.
4. WORKERS: Assign a score from the following table based on the total number of workers at the facility and nearby facilities with suspected contamination:

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
> 1,000	15

5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value from PA Table 7 for each terrestrial sensitive environment that is located on an area of suspected contamination:

Terrestrial Sensitive Environment Type	Value

6. RESOURCES: A score of 5 is assigned.

Sum =

T =

0 (50 or 0)	
0 (15, 10, 5, or 0)	
5	
0 (5)	
5	
10	

## WASTE CHARACTERISTICS

7. Assign the waste characteristics score calculated on page 4.

WC =

(100, 32, or 18)	
32	

RESIDENT POPULATION THREAT SCORE:

$$\frac{LE \times T \times WC}{82,500}$$

NEARBY POPULATION THREAT SCORE:  
Assign a score of 2

SOIL EXPOSURE PATHWAY SCORE:  
Resident Population Threat + Nearby Population Threat

(subject to a maximum of 100)

2.1

2

(subject to a maximum of 100)

4.1

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PA TABLE 7: SOIL EXPOSURE PATHWAY  
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

<i>Terrestrial Sensitive Environment</i>	<i>Assigned Value</i>
Terrestrial critical habitat for Federally designated endangered or threatened species	100
National Park	
Designated Federal Wilderness Area	
National Monument	
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species	75
National Preserve (terrestrial)	
National or State terrestrial Wildlife Refuge	
Federal land designated for protection of natural ecosystems	
Administratively proposed Federal Wilderness Area	
Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	
Terrestrial habitat used by State designated endangered or threatened species	50
Terrestrial habitat used by species under review for Federally designated endangered or threatened status	
State lands designated for wildlife or game management	25
State designated Natural Areas	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	

# AIR PATHWAY CRITERIA LIST

Site Name:

Date:

6/17/91

This chart provides guidelines to assist you in hypothesizing the presence of a suspected release. It is expected that not all of this information will be available during the PA. Also, these criteria are not all-inclusive; list any other criteria you use to hypothesize a suspected release. This chart will record your professional judgment in evaluating this factor.

The "Suspected Release" section of the chart guides you through evaluation of some conditions to help hypothesize whether a release from the site is likely. For the Air Pathway, if a release is suspected, "Primary Targets" are any residents, workers, students, or sensitive environments within 1/4 mile of the site.

Check the boxes to indicate a "yes", "no", or "unknown" answer to each question. If you check the "Suspected Release" box as "yes", make sure that you assign a Likelihood of Release value of 550 for the pathway.

AIR PATHWAY		
SUSPECTED RELEASE		PRIMARY TARGETS
<div> <div>Y</div> <div>N</div> <div>UNKNOWN</div> </div> <div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Have odors been reported?                 </div> <div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Has a release of hazardous substances to the air been directly observed?                 </div> <div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Are there any reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?                 </div> <div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is there any circumstantial evidence of an air release?                 </div> <div> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Other criteria? _____                 </div> <div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> SUSPECTED RELEASE?                 </div>	<p><i>If you suspect a release to air, evaluate all populations and sensitive environments within 1/4 mile (including those onsite) as Primary Targets.</i></p>	

Summarize the rationale for suspected release (attach an additional page if necessary):

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## AIR PATHWAY SCORESHEET

## Pathway Characteristics

Do you suspect a release (see Air Pathway Criteria List, page 21)?

Yes ☐ No ☒

Distance to the nearest individual:

ft

## LIKELIHOOD OF RELEASE

1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550, and use only column A for this pathway.
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500, and use only column B for this pathway.

LR =

A	B	References
Suspected Release	No Suspected Release	
(550)	(500)	
	500	
	500	

## TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a release of hazardous substances through the air (see Air Pathway Criteria List, page 21). \_\_\_\_\_ people x 10 =
4. SECONDARY TARGET POPULATION: Determine the number of people within the 4-mile target distance limit, and assign the total population score from PA Table 8.
5. NEAREST INDIVIDUAL: If you have identified any Primary Targets for the air pathway, assign a score of 50; otherwise, assign the highest Nearest Individual score from PA Table 8.
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from air hazardous substances (see Air Pathway Criteria List, page 21).

Sensitive Environment Type	Value
NA	0
NA	0

Sum =

7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.
8. RESOURCES: A score of 5 is assigned.

T =

	10
(50, 20, 7, 2, 1, or 0)	(20, 7, 2, 1, or 0)
	20
	0
(5)	(5)
5	5
	35

## WASTE CHARACTERISTICS

9. A. If you have identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.
- B. If you have NOT identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4.

WC =

(100 or 32)	
(100, 32, or 18)	(100, 32, or 18)
	32
	32

AIR PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

(subject to a maximum of 100)

6.8



Site Name: NETDOTDate: 6/17/91

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category												Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
Onsite	<u>10</u>	<u>20</u>	<u>1</u>	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	<u>1</u>
> 0 to 1/4 mile	<u>10</u>	20	<u>1</u>	1	1	4	13	41	130	408	1,303	4,081	13,034	40,811	<u>1</u>
> 1/4 to 1/2 mile	<u>25</u>	2	0	<u>0</u>	1	1	3	9	28	88	282	882	2,815	8,815	<u>0</u>
> 1/2 to 1 mile	<u>1446</u>	1	0	0	0	1	1	<u>3</u>	8	26	83	261	834	2,612	<u>3</u>
> 1 to 2 miles	<u>3756</u>	0	0	0	0	0	1	1	<u>3</u>	8	27	83	266	833	<u>3</u>
> 2 to 3 miles	<u>3194</u>	0	0	0	0	0	1	1	<u>1</u>	4	12	38	120	376	<u>1</u>
> 3 to 4 miles	<u>4494</u>	0	0	0	0	0	0	1	<u>1</u>	2	7	23	73	229	<u>1</u>
Score =															<u>10</u>

Nearest Individual = 20

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 5 or 9)	Product
Onsite	0.10	x	
		x	
0-1/4 mi	0.025	x	
		x	
		x	
1/4-1/2 mi	0.0054	x	
		x	
		x	
		x	

Total Environments Score =

# SITE SCORE CALCULATION

	S	S <sup>2</sup>
GROUND WATER PATHWAY SCORE (S <sub>gw</sub> ):	60.3	3636.7
SURFACE WATER PATHWAY SCORE (S <sub>sw</sub> ):	8.7	75.7
SOIL EXPOSURE PATHWAY SCORE (S <sub>se</sub> ):	4.1	16.8
AIR PATHWAY SCORE (S <sub>a</sub> ):	6.78	45.9
SITE SCORE:	$\sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_a^2}{4}} = 30.7$	

## RECOMMENDATION

Because of the documented on site well contamination the Bureau of Planning and Assessment recommends that the case be transferred to the Division of Water Resources, Bureau of Northern Enforcement. The on-site well contamination cannot be attributed to the site.

## SUMMARY

	YES	NO
1. Is there a high possibility of a threat to nearby drinking water wells by migration of hazardous substances in ground water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A. If yes, identify the wells recommended for sampling during the SI.		
B. If yes, how many people are served by these threatened wells? _____		
2. Are any of the following suspected to have been exposed to hazardous substances through surface water migration from the site?		
A. Drinking water intake	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Fishery	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Sensitive environment: wetland, critical habitat, others	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D. If yes, identify the targets recommended for sampling during the SI.		
3. Do people reside or attend school or day care on or within 200 ft of any area of suspected contamination?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain:	<input type="checkbox"/>	<input checked="" type="checkbox"/>